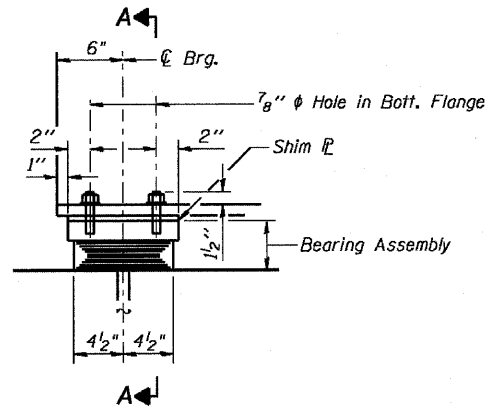


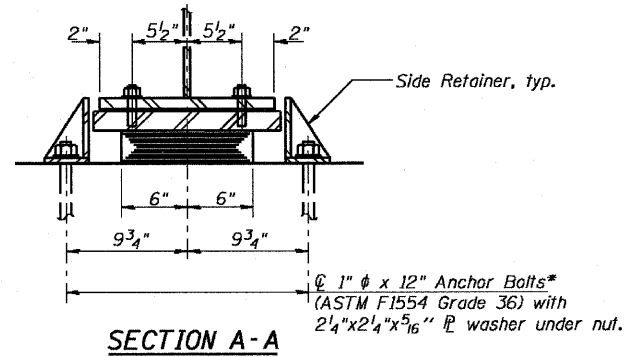
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET	SHEET NO. 53
786	109 BR	La Salle	351	253	89 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

Contract #66607



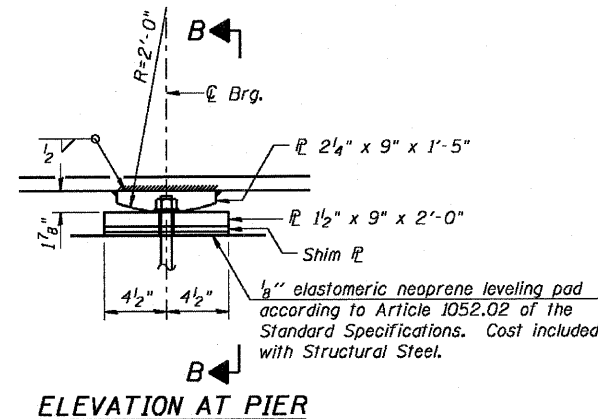
ELEVATION



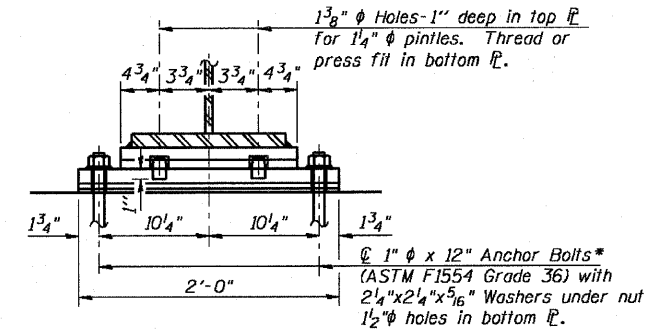
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.
AT PIER 8-S & S. ABUT.

* Lengths shown are minimum required embedment lengths.



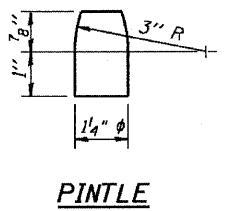
ELEVATION AT PIER



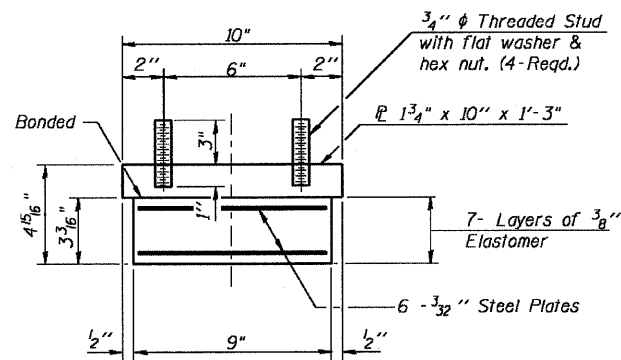
SECTION B-B

FIXED BEARING
AT PIER 9
(8-Required)

* Lengths shown are minimum required embedment lengths.



PINTLE

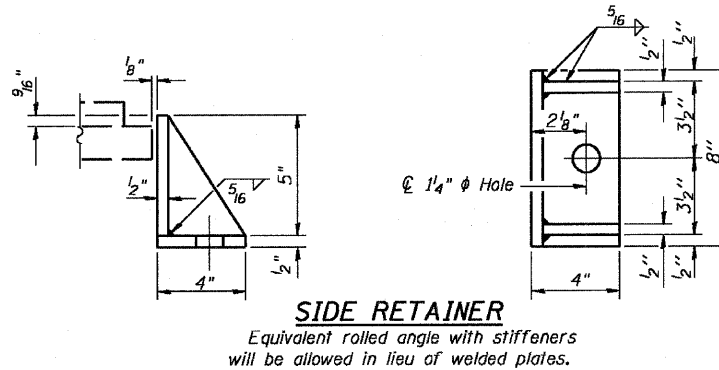


BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.
Two 1/2" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown.
The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50W.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	16
Anchor Bolts 1"	Each	48



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

INTERIOR BEAM MOMENT TABLE (UNIT 4)			
	0.4 Sp. 9	Pier 9	0.6 Sp. 10
I_s	8,200	8,200	8,200
$I_c(n)$	20,486	-	20,486
$I_c(3n)$	14,759	-	14,759
S_s	539	539	539
$S_c(n)$	763	-	763
$S_c(3n)$	687	-	687
Z	-	605	-
ϕ	0.865	1.257	0.865
$M \phi$	330	979	460
$s \phi$	0.392	-	0.392
$M_s \phi$	171	-	230
$M \ddagger$	571	368	640
M_{imp}	142	89	152
$\phi_3 [M \ddagger + M_{imp}]$	1,188	762	1,320
M_a	2,196	2,263	2,613
M_u	3,460	2,521	3,460
$f_s \phi_{non-comp}$	7.4	21.8	10.3
$f_s \phi_{comp}$	3.0	-	4.0
$f_s \phi_3 [M \ddagger + M_{imp}]$	18.7	17.0	20.8
f_s (Overload)	29.1	38.8	35.1
VR	55.3	-	54.5

INTERIOR BEAM REACTION TABLE (UNIT 4)			
	Pier 8	Pier 9	South Abut.
$R \phi$	36	126	42
$R \ddagger$	42	54	42
$Imp.$	10	9	10
R_{Total}	88	189	94

* Compact section

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in.⁴ and in.³).
 $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in.⁴ and in.³).
 $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
 Z : Plastic Section Modulus of the steel section in non-composite areas.
 ϕ : Un-factored non-composite dead load (kips/ft.).
 $M \phi$: Un-factored moment due to non-composite dead load (kip-ft.).
 $s \phi$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
 $M_s \phi$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 $M \ddagger$: Un-factored live load moment (kip-ft.).
 M_{imp} : Un-factored moment due to impact (kip-ft.).
 M_a : Factored design moment (kip-ft.).
 $1.3 [M \phi + M_s \phi + \frac{5}{8} (M \ddagger + M_{imp})]$
 M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
 f_s (Overload): Sum of stresses as computed from the moments below (ksi).
 $M \phi + M_s \phi + \frac{5}{8} (M \ddagger + M_{imp})$
 VR : Maximum \ddagger + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

STRUCTURAL STEEL DETAILS

UNIT 4

ILL. 170 F.A.P. 786 OVER
ILLINOIS RIVER AT SENECA
PUBLIC WATERS

LA SALLE COUNTY, SECTION 109 BR
STATION 79+04.42
STRUCTURE NO. 050-0246

DESIGNED RKM
CHECKED MTH
DRAWN AJF
CHECKED MTH

